

# W5YI

## Nation's Oldest Ham Radio Newsletter REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable. May be reproduced providing credit is given to The W5YI Report.

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### FOLDING NOVICE TESTING INTO THE VEC SYSTEM

On July 13th, the Federal Communications Commission adopted a *Notice of Proposed Rule-making* which looks towards consolidating the two existing ham radio operator license testing programs.

The existence of the Codeless Technician Class has had a major impact on the Novice Class. Certainly more than the amateur community expected! Comments filed on the No-Code proceeding a couple of years ago said that the Novice and any code-free entry level would be about equal in popularity. No so! Seventy-five percent of all first time licensees now are Technician Class and growing! In 1990, eighty-eight percent of all newcomers entered ham radio at the Novice level.

All operator license examinations, except for the Novice Class, are administered in the VEC System. That system has some 30,000 trained and accredited volunteer examiners (VE's) closely coordinated by 18 VE coordinators. Each examination for the Novice Class operator license is administered more informally by two amateur operators selected by the examinee.

The result has been a sharply decreased demand for the Novice testing program. It is clear that ham beginners are learning and passing the code after they achieve the Technician level. Although they do not get another license, Techs who pass a telegraphy exam become "Tech Plus" - for Technician plus code. This allows them

to operate on the Novice high frequency bands below 30 MHz.

The VEC's keep track of all candidates who achieve Tech Plus and periodically notify the FCC. The VEC's Tech Plus Data Base allows FCC monitoring stations to know which Technician licensees are authorized to operate below 30 MHz - especially on the ten meter band.

In calendar year 1991, the VEC System administered 172,061 examination elements to 103,251 persons at 8,118 sessions - an increase of 62% over 1990. And so far this year, the VEC System figures are up about 30% more than 1991. The VEC System is a growing program.

Novice testing, however, is down a staggering 42%! There were 5,676 new Novices for the five month period through May 1992 versus 9,718 for the same period last year. (In 1990 there were 12,822 new Novices between January and May.)

At present rate, only 12,000 of the anticipated 55,000 first time licensees will enter ham radio at the Novice level this year. And many new Novices are already being tested at VEC coordinated test sessions.

In separate petitions filed with the FCC in February of this year, the ARRL and W5YI-VEC both recommended to the FCC that all Novice examinations be included in the VEC System in the interest of efficiency. Actually the FCC had already been working on exactly such a proposal since last fall.

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## VEC System is superior

The VEC System screens all amateur radio Form 610 applications before submission to the FCC licensing facility in Gettysburg, Pennsylvania. The FCC keeps track of all defective applications received. The error rate in the VEC System - which processed nearly 70,000 applications last year - was less than one percent.

On the other hand, applications submitted under the Novice program have an error rate of 9.4 percent. This means that about one in every eight Novice applications must be returned. At the recent VEC Conference, FCC's Johnny Johnston, Personal Radio Branch Chief, pointed out the costs involved to correct those errors. "Labor that should be spent on providing a faster speed-of-service must be diverted to obtaining the correct information. It delays the processing of all licenses ...and it delays the newcomer from getting on the air," he said.

The better performance of the VEC System is primarily due to improved communications between the FCC, VEC and volunteer examiners. No such channel of communication exists in the Novice testing program. The VEC System is also perceived as a more credible testing system because all VE's must be approved by the VEC and examination records are centrally maintained for FCC inspection if warranted. Unlike the VEC System where pass and fail records are closely monitored, there are no statistics available on Novice examination failures.

## NPRM issued by FCC

On July 13th, the FCC adopted the *Notice of Proposed Rulemaking* to fold Novice testing into the VEC System. "Our experience with VEC System and with the current Novice examination system indicates that the VEC System is the superior system," FCC said in the Notice. "The informal ad hoc Novice system is inefficient and susceptible to various irregularities. ...By including the Novice examinations in the VEC System we can simplify the license application form by eliminating the separate certifications by VE's administering Novice examinations. In addition, one standardized form would avoid the confusion that now exists because of the two different procedures that are used in the administration of amateur service examinations." The FCC pointed out that all Novice examinations are already being administered in the VEC System as a part of other classes of operator licenses.

The FCC proposed to include the responsibility for the preparation and administration of Novice Class operator license examinations under the VEC System

with the same conditions that apply to the four higher classes of license. These conditions include requiring each VE to be accredited by a VEC, three VE's for the administration of an examination, coordination by a VEC of each examination session and issuance of a *Certificate of Successful Completion* (CSCE) to every examinee who scores a passing grade on an examination element.

## Novice test fees permitted

The NPRM also provides for expense reimbursement - that is, a test fee - for administration of the Novice examination. The maximum reimbursement currently permitted for coordinating the higher class examinations is \$5.44 - although this figure is rounded off to \$5.40 by most VEC's. "The VEC's and VE's are not required to accept reimbursement..." FCC said.

This fee could be waived for youngsters if it is determined that such a fee would have an adverse impact on school ham classes and ham radio growth. In any event, the presence of a test fee certainly has not hindered the popularity of the Codeless Technician Class! Ham radio has never been in better health.

A footnote in the Notice points out that the language of Public Law 98-214 (December 8, 1983) which provided for expense reimbursement for out-of-pocket costs incurred in preparing, processing, administering or processing examinations "...is broad in that it applies to all classes of operator license.

"Senator Goldwater, however, in discussing the legislation before the Senate stated that the reimbursement fee should not apply to Novice examinations. The statutory language contains no such exception. Because the statute is clear on its face, there is no need to resort to the legislative history." The FCC said that "While we have considered Senator Goldwater's comment, it does not rise to the level of a statutory requirement binding on us.

"Moreover, the structure of the amateur service has changed considerably since those remarks were made. Most noteworthy is the introduction of the Codeless Technician Class operator license. In addition, Novice Class licensees now enjoy additional privileges in the 10 meter band, as well as extensive VHF and UHF privileges, that were not available in 1983. Within the limits of the law, and in accordance with prudent administration, we are constrained to adapt our rules to accommodate situational changes."

## General class VE's

Many General Class VE's appear needlessly concerned that their amateur radio testing and training

WOULD YOU LIKE TO BECOME A VOLUNTEER EXAMINER?

"I am a currently licensed  Advanced  Extra Class amateur radio operator or operator trainee  I do not own a station or operator license revoked or suspended, and a SASE

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activities would be curtailed if Novice testing falls under the VEC System. Not true. The effect on these examiners is minimal. They would simply be accredited by VEC's - the same as Advanced and Amateur Extra Class VE's are now. General Class examiners could participate with existing VEC System teams - or could form their own. The main difference would be the need for three accredited VE's instead of two to conduct a test session.

By far, the biggest advantage to bringing the Novice program under the VEC System was not mentioned in the NPRM. VEC coordination provides a mechanism for circulating needed examination information. A channel of communication from the FCC through the VEC to the VE is of great importance. VEC's routinely keep their testing teams current on exam program changes. Constantly changing rules frequently impact the examination questions.

When the FCC adopted the Codeless Technician last year it was necessary for the Question Pool Committee (QPC) to make several adjustments in the Novice question pool. All VEC's were advised of the changes by the QPC so their examinations could be adjusted and VE teams notified.

Novice VE's could not be notified since their identity was unknown to the QPC. This caused some problems because many examinees used study manuals that contained questions that had been recently deleted from the Novice Element 2 exams. Most Novice level VE's prepare their Element 2 examination from license preparation material available in the publishing marketplace.

In fairness to the examinee and publishers who have study manuals on-the-shelf, VEC System policy is to eliminate (rather than revise or replace) any examination question involving recently amended rules. Bringing Novice testing under the VEC System will allow the VEC to inform the VE of recent changes to question pools and procedures.

## W5YI-VEC accrediting General Class VE's

It is assumed that all VEC's will begin advance accreditation of General Class VE's almost immediately in anticipation of the proposal being adopted. We invite you to become an accredited volunteer examiner if you are a General or higher class amateur who participates - or wishes to participate - in Novice testing. Every VEC furnishes their testing teams with complete instructions, forms and testing materials.

To become an accredited VE, simply write to the W5YI-VEC (P.O. Box 565101, Dallas, Texas 75356) and request a VE application. You can also phone us at 817/860-3800 during the business day or 817/461-6443

at other hours. The two largest VEC organizations, the ARRL-VEC and W5YI-VEC, account for about 85% of all amateur radio operator license testing. Both share expense reimbursement (test fees) with their VE teams.

It should be clearly pointed out that even if this proposal is eventually enacted into law, it still could easily be another year before it takes effect. Government rulemaking takes time. Our best guess is that it will be summer 1993 before Novice testing is folded into the VEC System. Perhaps the effective date will coincide with the release of new Novice Element 2 questions now being prepared by the VEC's internal Question Pool Committee.

New Novice (and Technician Element 3A) questions will begin showing up in examinations after June 30, 1993. Massive changes will be made to the Novice and Technician questions and a mechanism is needed to insure that the new question pools are known and used.

Interested parties may file comments on the proposal to bring Novice testing under the VEC System on or before October 9, 1992; reply comments by November 9, 1992. To file formally, you must file an original plus four copies with the Office of the Secretary, Federal Communications Commission, Washington, DC 20554. If you want each Commissioner to receive a personal copy, you must file an original and nine copies. Be sure to mention you are commenting on PR Docket 92-154 so your views will end up in the right file!

## FUTURE AMATEUR SATELLITE DISCUSSED ON INTERNATIONAL TELECONFERENCE NET

AMSAT's "Phase 3D" satellite, due for launch in 1995, got a thorough review on a teleconference net that aired to an international audience Sunday, July 12. Along with many key AMSAT people net participants included *Roy Neal, K6DUE*, as moderator and astronaut *Tony England, W0ORE*, who discussed the significance of Amateur Radio in space and how it relates to the Space Shuttle program.

Purpose of the two-hour-long net, which was carried by well over 400 repeaters nationwide and relayed overseas as well, was to make the ambitious Phase 3D project better known throughout the U.S. Amateur community and to stimulate support for its construction and launch.

Among the key points made by the net participants was that not only will Phase 3D provide far greater capability than any previous Amateur bird, but it will also come on line just as one of the principal active satellites is predicted to die.

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**Dick Daniels, W4PUJ**, Phase 3D's Project Manager, led the discussion on the new satellite itself assisted by AMSAT North America's President **Bill Tynan, W3XO**. The new bird will utilize every Amateur band, from 10 meters through 3 centimeters, that are authorized for satellite operation, and its transmitters will range from 80 to 250 watts output with high gain antennas that will boost the effective radiated power to 25 kW on some bands!

Receive/transmit combinations will be ground commanded for maximum flexibility, and with receiver sensitivity enhanced by the high antenna gains it will be possible to work the new bird from a mobile or even possibly an appropriate hand-held radio!

Physically, Phase 3D will be far and away the largest Amateur satellite yet, with an 1100 pound basic structure 10.5 feet in diameter and over 3 feet high. Solar panels will extend its "wingspan" to over 25 feet. Its elliptical orbit will take it from a maximum of almost 29,000 miles to a minimum of 2400 miles from the earth, and its three-axis stabilization system will keep the high-gain antennas pointed earthward throughout each orbit. Northern hemisphere user access can be as much as 16 hours a day.

A key benefit of Phase 3D will be its accessibility; its strong downlink signals, high receive sensitivity, wide choice of uplink and downlink bands, and long access windows will literally make it possible for any Amateur anywhere on earth to use it. Furthermore, as AMSAT's Educational Director **Rich Ensign, N8IJW**, pointed out, these same factors will make Phase 3D very attractive for interactive classroom programs, a role that's already being planned to help stimulate interest among young people in both becoming Amateurs and pursuing technical careers.

Amateurs in the United States, Germany, Japan, England and other countries have been hard at work on the new bird for some time, but much work needs to be done and funding for that work remains a problem. The funding problem was discussed by AMSAT's Director of Development **Joe Schroeder, W9JUV**, who reported the projected cost of Phase 3D's construction and launch to be about \$4 million of which \$1.5 million has been pledged by AMSAT North America. Funding for a project of this magnitude is never easy!

**Barry Goldwater, K7UGA**, provided a strong endorsement for the project in a segment taken from a Phase 3D promotional video he made earlier this year, and **Karl Meinzer, DJ4ZC**, made a taped report on AMSAT-DL's project status. A real highlight of the net was a delightful interview with the internationally known science fiction writer Arthur C. Clarke, taped a few days earlier from his home in Sri Lanka.

Clarke, who had predicted the role of satellites in

international communications years before the first satellite went into orbit, had a lot of very nice things to say about Amateur Radio in general and the Amateur space program in particular. AMSAT's Executive Vice President **Ray Soifer, W2RS**, also provided a review of the history of Amateur Radio in space, starting in 1961 with OSCAR 1.

The two hours the net was on passed very quickly, and response thus far has been very positive. For information on the Phase 3D project or to make a contribution toward it, write AMSAT, Box 27; Washington, DC 20044. A tape of net highlights may also be made available in the near future. A video tape of Senator Goldwater's discussion of Phase 3D with Roy Neal and Joe Schroeder is also available for loan for club or hamfest showing from Joe Schroeder, Box 406, Glenview, IL 60025.

In addition to the many Amateurs who made their repeaters available for the net, special thanks go to **John Desmond, K0TG** and the Darome Connection in Minneapolis, whose facilities made the net possible; the Let's Talk Radio Network (**Blair Alper, KA9SEQ** and **Frank Collins, N6TAF**), which provided satellite upfeed on GET Spacenet; Steve Cole of Crossband for his promotion on WWCR; announcers **Andy Jarema, N6TCQ**, and **Bob Sudock, WB6FDF**; ...and last but not least, Bill Pasternak, WA6ITF, Producer/Director.

## BILL HALLIGAN, WA9C, DEAD AT AGE 93

**William J. Halligan, ex-W9AC**, founder and retired chairman of the Hallicrafters Co., died July 14th in Miami Beach, Florida. "Wireless Willie", as he was affectionately known, got his first ham ticket as a teenager and later worked as a commercial and military radio operator during World War I on the Battleship Illinois.

He attended West Point, but dropped out to become a newspaper reporter. After leaving journalism, he sold equipment for a radio supply company in Boston. Halligan started Hallicrafters in 1933 as a supplier of amateur shortwave radios and developed it into a major manufacturer of electronic equipment for the home, industry, the military and aerospace.

During World War II, Hallicrafters made shortwave radios for the military - and after the war, home television sets and peacetime radar. Hallicrafters continued to be a major supplier of ham radio gear during the fifties and sixties which he sold through Sears, Roebuck and Montgomery Ward catalogs. His firm was acquired by Northrop Corp. in 1960 and he continued on as president and chairman of Hallicrafters until 1967.

Survivors include two sons, William, Jr., and Jack, 10 grandchildren and 12 great-grandchildren.

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## JUNE AMATEUR LICENSING STATISTICS

### June

1989    1990    1991    1992

#### New Amateurs:

New Novices	1805	1724	1088	1371
New Tech's	176	214	2112	4525
Total New:	2003	1984	3231	5957

#### Upgrading:

Novices	1361	1690	1002	1569
Technicians	395	514	420	*N/A
Generals	279	345	275	N/A
Advanced	200	266	191	N/A
<b>Total:</b>	<b>2235</b>	<b>2815</b>	<b>1888</b>	<b>N/A</b>

#### Renewals:

Total Renew:	241	77	45	89
Novices	38	8	1	13

#### Purged:

Total Dropped:	1729	4068	11	27
Novices	839	1813	2	4

#### Census:

Indiv. Oper.	459307	451878	520919	571280
Change/Year	+22904	-7429	+69041	+50361

#### Individual Operators by Class: (and % of total)

<u>Extra</u>	<u>Advan.</u>	<u>General</u>	<u>Technic.</u>	<u>Novice</u>	<u>Total:</u>
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#### June 1989

48711	100808	115686	109296	84806	<b>459307</b>
10.6%	21.9%	25.2%	23.8%	18.5%	100.0%

#### June 1990

48624	98615	113329	110790	80620	<b>451878</b>
10.8%	21.8%	25.1%	24.5%	17.8%	100.0%

#### June 1991

55425	106462	121204	140858	96970	<b>520919</b>
10.7%	20.4%	23.3%	27.0%	18.6%	100.0%

#### June 1992

59720	109020	124202	179761	98577	<b>571280</b>
10.5%	19.1%	21.7%	31.5%	17.2%	100.0%

#### Club/

RACES &	<b>(1989)</b>	<b>(1990)</b>	<b>(1991)</b>	<b>(1992)</b>
Military:	2474	2449	2432	2431
Total Active:	<b>461781</b>	<b>454327</b>	<b>523351</b>	<b>573711</b>
% Increase	+ 5.3%	- (1.6%)	+15.2%	+ 9.6%

(\* = Does not include Technicians upgrading to Tech Plus)

## INITIAL AMATEUR LICENSES BY CLASS/YEAR

One of the assumptions of the "no code" proceeding (PR Docket 90-55) was that most newcomers to the Amateur Service, given a choice, would elect to enter via a "codeless" rather than the Novice license. Therefore the Commission initially believed that there would be no need for a Novice Class license. The Communicator license was to replace the Technician Class. It appears they were right!

As you are all aware, based on the received comments the FCC finally elected to retain both the Novice and Technician Classes. They simply eliminated the code requirement from the Tech. It is interesting to now review a breakdown of the initial class of license held by beginners in the Amateur Service.

Keep in mind that the first Codeless Technician operator license was issued on March 12, 1991. Prior to this date nearly all new hams entered the hobby at the Novice level. Now, 75% of all newcomers enter at the Technician level. There are now more than 70,000 (or 65%) more Technician licensees than just three years ago! First half figures over the last 5 years:

### Class      Newcomers to the Amateur Radio Service

<u>1988</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Total</u>
Nov	989	1466	2407	1996	2714	1234	10806
Tech	165	126	251	168	233	186	1129
Other	35	32	75	31	55	74	302
Total	1189	1624	2733	2195	3002	1494	12237

<u>1989</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Total</u>
Nov	1930	1041	1933	2512	2869	1805	12090
Tech	247	200	181	255	356	176	1415
Other	57	33	33	54	77	22	276
Total	2234	1274	2147	2821	3302	2003	13871

<u>1990</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Total</u>
Nov	2434	1679	2466	2368	3875	1724	14546
Tech	191	219	205	239	359	214	1427
Other	46	43	56	51	50	46	292
Total	2671	1941	2727	2658	4284	1984	16265

<u>1991</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Total</u>
Nov	1713	1810	1734	2651	1801	1088	10797
Tech	89	307	882	3025	2858	2112	9273
Other	14	45	40	73	55	41	258
Total	1816	2162	2656	5749	4714	3231	20328

<u>1992</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Total</u>
Nov	655	1260	1364	1330	1066	1371	7046
Tech	3318	2764	3347	3810	3058	4525	20822
Other	57	68	95	75	54	61	410
Total	4030	4092	4806	5215	4178	5957	28278

## NUMBER OF AMATEURS BY CALL SIGN GROUP:

<u>Group</u>	<u>Extra</u>	<u>Advan.</u>	<u>General</u>	<u>Technic.</u>	<u>Novice</u>	<u>Total</u>
A	34321	685	249	7	0	35262
B	3228	28000	54	6	1	31589
C	13722	43638	66893	81985	49	206287
D	7904	36577	56900	97700	98525	297606
Other	245	120	106	63	2	536
Total	59720	109020	124202	179761	93577	571280

[Group "A"=2X1 & 2X2; "B"=2X2; "C"=1X3 "D"=2X3 format.]

[Source: FCC Licensing Facility, Gettysburg, PA]

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## HAM ATV ENTHUSIAST ASKS FCC TO TEST HDTV

On July 17th, Amateur TV experimenter, **Leo Zucker K2LZ**, of White Plains, NY, filed comments with the FCC asking that they order testing of his patented high definition television system. He also has formed a company which he named *Future Images Today (FIT)*.

While the Chairman of the FCC's Advisory Committee on Advanced Television Systems acknowledged in Dec. 1989 that Zucker's HDTV proposal was "...unique and intriguing," he added that "...no testing slots are available" and "because of the unique approach taken ...the Advisory Committee ...was not capable of evaluating the system even if a testing slot later became available." The FCC's Advisory Committee is headed up by ex-FCC Chairman, Richard E. Wiley.

K2LZ's technology uses two separate 6-MHz NTSC standard 525-line signals transmitted on the same frequency to arrive at 1050-line non-compressed HDTV while at the same time remaining compatible with existing home (NTSC) TV receivers.

His formal comments say "The FIT System was conceived and developed by an FCC licensed Amateur Extra Class Radio Operator. Over-the-air transmission experiments with the FIT system are being carried out in the 70 cm (UHF) amateur radio band as authorized under 47 C.F.R. §97.305(c). The Commission established the amateur radio service for the purpose of continuing and extending 'the amateur's proven ability to contribute to the advancement of the radio art.' 47 C.F.R. §97.1(b). The FIT system evolved because of the freedom allowed by the Commission for specialized communications systems including image type emissions. FIT encourages the Commission to continue to allow suitably licensed operators wide latitude in experimenting with specialized communications techniques."

Zucker pointed out that the Advisory Committee has an obligation under its Charter to "...advise the FCC on the facts and circumstances regarding Advanced Television systems for Commission consideration of the technical and public policy issues."

He further reminded the FCC that the "All-Channel Receiver Act" requires Advanced Television broadcast compatibility with existing home TV receivers. "The FIT system provides a way to create Advanced Television without denying programming to a single consumer." Of the HDTV systems under consideration, only the K2LZ technology is compatible with current TV sets.

Leo Zucker, K2LZ, feels the American viewing public should be afforded an opportunity to see and comment on the picture quality of all proposed Advanced Television systems. "...the Commission ought to have a reasonable basis for believing that there is a market for HDTV."

- The FCC has clarified that IVDS (two-way *Interactive Video Data Service*) the newest of the Personal Radio Services) can be used in conjunction with any form of video or data distribution - not just broadcast and cable TV. On January 16, 1992, the FCC established a frequency allocation and service rules for IVDS. The purpose was to make available an allocation of radio spectrum to provide a variety of radio-based interactive video services to the public. New York City be the first with IVDS.
- ICOM America has *recalled all P2AT 144-MHz and 440-MHz Handi-Talkie transceivers* due to a problem with leaking internal lithium batteries. They will replace the battery at no charge and extend the warranty on modified radios an additional year. Call 206/454-7619 for recall instructions.
- The FCC has implemented their *new retesting policy* when ham license examination irregularities are suspected. Several applicants are being re-examined as a result of a Waterville, NY impropriety. Also, the DeVry Amateur Radio Society-VEC is no longer in business. In its place we find the *Great Lakes Amateur Radio Club-VEC*. (P.O. Box 273, Glenview, IL 60025)
- A packet message is circulating about a petition filed proposing a *no-theory amateur license*. John Johnston, FCC Personal Radio Branch Chief (Washington, DC) confirmed the existence of this proposal during the VEC Conference. His view was "no code, no theory: no privileges." You can anticipate that this petition will be dismissed without a comment period.
- Two more *National Teleconference Radio Nets (NTRN)* are planned this year. One in September will consider the revisions to §97.113, the *"No Business Rule"*. A December NTRN will deal with the *All Volunteer Testing Program* - including bringing all testing under the VEC System and release of new Element 2 and 3A (Novice/Technician) question pools scheduled for December 1st.
- Talk about a logistical nightmare! *NBC is covering the 1992 Olympic Games* in Barcelona with some 200 cameras, 1,200 video tape recorders, 2500 video monitors and 700 pieces of audio gear. The IBC (International Broadcast Center) has 11 edit suites, 9 more at other venues and 14 mobile units. Some 600 technicians, mostly free-lancers, will be on the job. The equipment is all Matsushita (Panasonic) in the PAL (European) standard rather than NTSC (U.S.) TV format. The PAL uplink is converted to NTSC on the way up to the satellite.

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- The FCC has adopted *new rules to facilitate the introduction of sophisticated new home automation and communications systems*. These systems promise to bring new levels of convenience to the American public. For example, a home automation and communications system can help minimize losses due to fire and theft, control lights and appliances within the home; monitor and control energy use and distribute entertainment programming such as radio and television signals throughout the home.

These systems use a variety of distribution techniques including the use of the home electrical wiring to distribute radio frequency (RF) signals that control or monitor appliances and other electrical devices ("carrier current") and cables to distribute radio and television signals ("master antennas.")

The ARRL and others suggested that the FCC adopt RF Susceptibility standards for consumer electronic equipment including home automation and communications equipment. The Commission said it was aware that industry was addressing RF susceptibility through development and implementation of voluntary standards. "We continue to support such initiatives and find no basis to pursue mandatory requirements at this time. Further, susceptibility standards are beyond the scope of this proceeding," the FCC said.

## DXCC BACKLOG – TIME TO STOP THE BLEEDING?

It's baaaack! The DXCC backlog, that is, which raises several serious questions. DX Century Club is an award for contacting 100 or more foreign countries. Is this ARRL-sponsored program spiraling out of control like a Congressionally mandated welfare entitlement program? Should the DXCC program be downsized because of its limited appeal to a special-interest group? Indeed, is the general membership of the League (i.e. the non-DXing "silent majority") being ill-served if not shortchanged by hemorrhaging DXCC expenditures?

With the processing backlog one again growing in geometric proportions, it remains to be seen whether the Board of Directors and top management at ARRL HQ will be courageous enough to deal with the problem without simply throwing more money at it or scapegoating staff personnel.

Reportedly, Executive Vice President Sumner, K1ZZ, received a directive from the Board at the recent July Director's meeting to "fix it." The previous effort to "fix" DXCC culminated in the discharge of two senior HQ staff members but only a temporary lull in the backlog itself. Will more heads roll at HQ?

To be sure, the processing backlog has had historical roots, and often parallels the ups and downs of the

sunspot cycle. A major retooling of the DXCC program occurred in 1988 near the peak of sunspot cycle 22. Like many of the entitlement programs that in practice have become counterproductive (if not destructive) and nightmarishly costly, DXCC was undoubtedly expanded with the best of intentions (that is, to please as many DX aficionados as possible).

A January 1988 Board Motion -- prompted by the DX Advisory Committee report -- saw the League significantly expanded the already existing program by authorizing new 80, 40 and 10-meter single band awards and making all DXCCs fully endorsable, all this without a careful consideration of the further burgeoning spending that would result.

The 10-meter award, as adopted, epitomizes the problem and is particularly instructive. The administratively manageable staff recommendation would have required all 10-meter DXCC QSOs to be made on or after March 21, 1987, the implementation date of Novice Enhancement. This would give newcomers and DX veterans a level playing field and provide a great opportunity for the League to welcome Novices to phone operation. This would have also served to silence the critics that have argued that DXCC is designed for calcified oldtimers.

Unfortunately, as if caving in to a political action committee, the Board did not have the will to say "no" to the myopic DX Advisory Committee. So the directors overrode the staff recommendation, making 10-meter DXCC (as well as the new 80 and 40-meter DXCC) retroactive to November 15, 1945. Those who had more shoeboxes full of vintage QSLs were able to leap to the head of the class, and those bundles quickly found their way to ARRL HQ. A backlog situation started practically overnight, and expenditures for labor-intensive QSL-card processing skyrocketed.

In the name of making DXCC rules politically palatable to these vested interests, the Board failed to address or verify long-term funding requirements for this expanded program. In effect, they created a monster for which they have refused to take responsibility. There are now 12 separate DXCC awards, all incrementally endorsable after the minimum 100 countries, plus the DXCC Honor Roll.

Over the years, ad hoc weekend "card parties" have been held to address temporary DXCC-processing backlog situations. Subsequent to the drastic growth of these DXCC entitlements, League management elevated the card-party concept to new heights. When the processing backlog of both new and endorsed awards reached unacceptable proportions in late 1990, top management responded to pressure from the Board by demoting and then later terminating Communications Manager John Lindholm, W1XX

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(DXCC Manager Don Search, W3AZD, would meet a similar fate in March 1992) and then dragooning every available body (ham and non-ham alike) from other departments at HQ to assist in the QSL-card checking and DXCC-application processing effort during regular business hours.

Although the League's mission of preserving and promoting the Amateur Radio Service goes well beyond checking QSL cards, appropriately 50% of the over 100-employee HQ workforce were engaged in DXCC processing at one time or another in 1991! DXCC had been budgeted for \$100,000 per annum, but the real costs may be double or triple that number in view of this massive deployment of personnel.

The July 25, 1991, issue of *The ARRL Letter* reported that the DXCC backlog was "essentially a thing of the past" and that full computerization of the DXCC awards program would go into effect October 1, 1991. But some DXCC observers question whether the backlog was ever eliminated in 1991.

Be that as it may, the July 10, 1992, issue of *The DX Bulletin*, published by Chod Harris, VP2ML, reported that DXCC processing had fallen far behind again. Presumably based on figures provided by HQ, Harris wrote that as of June 26, 1992, the DXCC desk was processing applications received on February 6, 1992, and were backlogged as far back as December 30, 1991 in returning QSL cards to applicants and sending out endorsement stickers. Also according to Harris, the DXCC desk had 3718 pending applications with over 200,000 cards to check and enter into the DXCC data base.

Clearly, the computerization of DXCC has not been the panacea as originally trumpeted. According to sources, Sumner reported to the Board that the backlog's reemergence was caused by the original paper records (many if not most of which are several decades old) being faulty. Traditionally, though, great care had been given to keeping the individual DXCC paper records accurate and precise each time the DXCC member submitted an endorsement. The actual problem may be just the opposite, i.e. the labor-intensive computer record key stroking of existing DXCC records.

Supposedly, when a DXCC member submits an endorsement application, his entire record to date is entered in the League's mainframe computer ("backfilling"). This backfilling puts a horrendous, if not unfair, amount of work on the shoulders of permanent DXCC staff. To be sure, DXCC can be very esoteric and intricate, what with new and deleted countries, permissible (and non-permissible) DXpeditions, similar prefixes ...and such.

For a brief time, the League permitted individual

members to keyboard their own DXCC record on a floppy disk for submission to HQ. This way abruptly terminated, however, evidently because the members were making too many errors.

If DXers in the field were making too many errors, how can a non-licensed secretary or a clerk at the HQ level be reasonably expected to maintain the integrity of the process? Sources tell us many computerized records are a shambles as a result of data entry errors (including incorrect prefixes, deleted-country miscues, countries miscredited, number of endorsements not adding up correctly, etc.), by HQ support personnel understandably unfamiliar with ham radio generally and DXCC particularly. (Readers who have received printouts of their DXCC records fraught with errors are urged to share such war stories with the W5YI Report.)

The problem, then, seems not to be the original paper records but in the transfer of information from paper to computer. Attempted correction of inaccuracies in their individual DXCC records by DXCC applicants only compounds the backlog problem which gets worse and worse and requires more staff and money to unsnarl. And perhaps more career-killing scapegoating.

The Board and top ARRL management continue to treat the symptom of the problem by an unfocused throwing of money and manpower at DXCC, especially in recent years, rather than a comprehensive review of the program itself. Is the average League member, who does not participate in DXCC, getting his/her money's worth? Indeed the general member of the League may be getting hoodwinked by having so much of his dues allocated to the DXCC program way out of proportion to the number of active DXers within the League membership.

It appears that the League is offering too much program to too few members. DXCC observers say the solution is to downsize. The Board needs to have the boldness to reduce the program to a manageable level which would probably mean a general, mixed-mode DXCC award only, with a sunsetting of single-band and single-mode awards.

It's uncertain whether the ARRL Board could stand up to a vocal special-interest group and implement a desperately needed cutback in excessive DXCC benefits--just as the U.S. Congress needs to overcome similar pressure from special interests and address the huge federal budget deficit. Like Congress, however, the League's Board has often been tentative in addressing controversial issues directly, preferring to politicize, procrastinate and point fingers. [Sorry if I'm overly controversial on this matter. Comments are welcome. Fred/W5YI; DXCC Mixed No. 16653 & CW Only No. 220.]

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## NEW WORLD OF WIRED AND WIRELESS!

*PCS and the Video Dialtone!*

Telephone and cable companies are about to expand their services. In the end there may be little difference between them! Last week was a big one for major decisions at the FCC! They proposed preliminary guidelines for wireless PCS (personal communications services) and final rules for the so-called "video dial tone". That is, telephone companies will now be allowed to deliver television services to subscriber's homes over their phone lines.

### Personal Communications Services

Amateur operators usually use their equipment to contact a person, not a place. The public will soon be able to do the same. We hams take our "telephone" with us and our phone number is our FCC issued call-sign. Personal Communications Systems (PCS's) are radio techniques that allow wireless voice, video and data service to mobile, portable and handheld telephones. Basically, it means people will never be without communications. PCS subscribers will be able to be found - that is, whenever they want to be - and at a lower cost than cellular service.

The day may not be far off when people will be able to carry what amounts to a miniature "pedestrian" communication system that could serve as a wireless telephone, computer terminal, two-way video, advanced paging, facsimile, electronic mail ...and more!

At the heart of PCS's are PCN's; Personal Communications Networks. A PCN is a complete telephone system, that runs in conjunction with wire-based or glass fiber systems. PCN phones are handheld digital radio transceivers, with landline voice quality. Security in the transmission link assures users that they will not be overheard by any unauthorized listeners.

### How Does PCN Work?

A PCN resembles a cellular phone network. Both systems exchange radio signals with a base station, which links the mobile phone to the public telephone system. The difference lies in the amount of power necessary to complete the link. A PCN phone needs only 10 mW, compared to 600 mW for cellular. This means a PCN phone can use smaller batteries.

Another difference is the size of the "cells." Both PCN and cellular phones use the cell concept, in which a city is broken up into small sections, ...like individual cells in a honeycomb. When a caller changes location, he or she changes cells. The base station senses this and automatically shifts the connection. While cellular cells can be up to several miles wide, the PCN cells usually do not exceed a quarter

mile. This is due to the lower transmitter power of the PCN phone. PCN cells are often called microcells.

### Is There A Market?

PCN manufacturers certainly think so. More than 7 million cellular telephones are currently in use. That number is expected to jump to 20 million by 1995. The market for PCN might reach between one-third and one-half of all U.S. consumers and businesses. According to a research study recently released by respected Arthur D. Little, Inc., cellular-like personal communications services are expected to serve 25 million subscribers within five years; 40 million within ten with PCS revenue reaching up to \$40 billion!

Assuming that PCN's will cost the average household \$10 a month in extra fees, and that a handset will cost \$100, the expected revenues could reach \$10 billion in the first year alone. Other introductory costs include new transmitters and antennas. PCN's need many more sites than cellular. But PCN is cheaper in the long run.

### Startup Problems

The biggest obstacle facing PCN now is where to put it in the radio frequency spectrum. The FCC doesn't want to take away any spectrum space that is already in use, as in the 220-222 MHz ham debacle, but apparently that is necessary. Many experts believe that broadcast television and other non-mobile users should be moved to wire-based transmission so frequencies can be freed for mobile technologies that require over-the-air communications.

Broadcasters may be getting the message; some are considering joining with wireline cable and telephone companies. Terrestrial broadcast television, a declining technology, is allocated nearly 350 MHz of scarce spectrum between 174-216 MHz and 512-806 MHz. Some call it a waste since much of it is unused. And most people receive broadcast programming via wireline anyway. PCN's make efficient use of the radio spectrum. Not only does this make PCN's feasible to begin with, but new technologies allow for larger capacities of callers.

Which technology to use? Several are in the running. Today's cellular service is considered to be a first generation PCS service. Cordless Telecommunications, 2nd Generation (CT2), uses a technique called frequency-division multiple access (FDMA) to divide 4 MHz of spectrum into 40 channels of 100 kHz each. The PCN transceiver checks each channel in millisecond intervals. If it finds another channel with less interference, it switches to the clearer channel. England may begin using CT2 by the end of 1992. The drawback is that CT2 runs in the 800-1000 MHz range,

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most of which is already in use by other services.

Another technique is called spread spectrum. This distributes signal strength over a wide bandwidth, so that the energy transmitted over any one frequency is low. Codes transmitted by the sender tell the receiver how to piece together the message. Spread spectrum is the idea behind frequency hopping (in which the carrier frequency is constantly changed) and direct sequence (in which several transmissions are sent over the same frequency, but each receiver listens only to what it is told to listen for).

But despite the efficiencies, spectrum space is still scarce. The FCC earlier moved to allocate 220 Mhz of spectrum between 1.85 and 2.20 GHz band for PCS and other new emerging technologies. TV broadcasters complain that such a move would place PCS smack in the middle of their microwave transmitter links and intercity relays. And electric companies, railroads and oil pipelines do not want to give up their portion of this spectrum.

The FCC has yet to nail down regulations allowing cable or telco entry into the PCS marketplace. And Congress has now gotten into the foray, which could delay PCS implementation until 1996. The FCC wanted to have it ready by 1994. Washington lawyers are gearing up for a battle royal! The Commission did, however, make some preliminary proposals.

They plan to begin awarding three and a maximum of five PCS licenses in various geographical markets to foster competition. The licenses would give access to between 20 and 40 MHz of spectrum with 30 MHz preferred. The FCC also proposed an allocation of 20 MHz at 2 gigs for non-licensed PCS service to be provided on a Part 15-type basis.

Besides spectrum intensive broadband PCS services in the 2 GHz band, the FCC also proposed a narrow band service at 900 MHz for such technologies as advanced paging. (901-902, 930-931 and 940-941 MHz with 50 kHz to 1 MHz channels.) The FCC hopes to get authority to auction off PCS spectrum to the highest bidder.

The cable TV industry wants to join the PCS network because they can offer their wire and fiber-optic links to the base stations so they can connect to the landline telephone networks. While they can charge for this, some industry experts worry that cable companies may charge too much money.

## Telco TV - Video over the Phone

The FCC also unanimously voted on July 16 to permit individual telephone companies to use their lines to carry cable television programming into consumer's homes starting immediately on a common carrier

basis. This is a final order, not a proposal. Thus, telephone carriers are now able to deliver cable programming into the home. They may not be a cable operator, however, there is a difference.

One objective of the decision, which could affect virtually every household in the country, is to foster powerful new competition to existing cable operators - most of whom have effective monopolies in the areas they serve. Competition generally brings prices down. Telcos do not have to obtain a municipal cable franchise to offer "video dial tone."

Phone companies would also be allowed to own up to 5% of the programs they deliver - a percentage telcos feel inadequate. They want the right to totally own and package programming which is prohibited by the Cable Act of 1984. One telephone executive said the FCC decision does not offer enough to cover the cost of building switched broadband networks.

Telcos would be permitted to provide full cable service only to small communities of up to 10,000 population where it is not now available. (This figure was upped from the previous cutoff of 2,500.) They are already permitted to offer full cable service in areas where they do not offer phone service. At least one programmer (Turner Broadcasting) said they will sell programming to anyone who comes to them with a proposal to do so.

Broadcast and cable groups are certainly not happy with the Commission and has vowed to fight the new FCC rules! Some consumer advocates believe the measure encourages phone companies to build new and expensive TV plants with the telephone customer footing the bill. All feel the FCC has overstepped its authority and they are now turning to Congress and the courts for relief.

Phone companies also can offer such enhancements as "search capabilities," video mail (televised voice mail), video processing (user manipulation of camera angles and replays), video-on-demand (programming that you choose, such as movies), network-based VCR capabilities (to allow time shifting) and services to allow parents to tailor the viewing choices for their children. They also may do their own billing and provide inside wiring and other needed equipment.

The video dial tone would resemble a menu of choices that would appear on a TV screen. Phone companies could provide their own text and other non-programming services. For the most part, other firms would originate the programming that lies behind the menu choices.

But don't look for television services over the phone lines any time soon. It will probably take years before local carriers have networks in place capable of distributing video to millions of customers.